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Title Landing Gear Modelling for Flight Simulation - Part II

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Abstract This report describes the landing gear modelling undertaken for incorporation into the six degree of freedom simulation software -CLASS. The general equations of motion for many rigid bodies interacting with each other are derived in the Newtonian formulation. These results are applied to the derivation of the equations of motion of the telescopic and articulated landing gears. A complete analysis of the aircraft dynamics on the ground is presented. Novel trim algorithms for trimming the aircraft on the ground have been developed. The linearized equations of motion on the ground are derived and many important conclusions are drawn regarding the dynamic behaviour of aircraft during take-off. The results are directly relevant to assessment of handling qualities of aircraft in take-off in the preliminary design stage. In conclusion, the simulation results of a typical landing and take-off are presented.